

Application No. 10/708,205
Docket No. 137229
Amendment dated September 5, 2006
Reply to Office Action of June 5, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (Currently amended): A process for refurbishing a worn surface of a component subject to high compression contact, the process comprising the steps of:

removing a surface region of the worn surface so as to define a repair surface on the component;

forming a braze tape from a slurry, the braze tape comprising a powder of a metallic cobalt-base wear-resistant alloy and a powder of a cobalt-base braze material having a lower melting temperature than the wear-resistant alloy, wherein the wear-resistant alloy consists of, by weight, about 27 to about 29% molybdenum, about 16.5 to about 17.5% chromium, about 3.0 to about 3.5% silicon, up to about 3% iron, up to about 3% nickel, with the balance cobalt, minor alloying elements, and incidental impurities;

applying the braze tape to the repair surface;

heat treating the braze tape and the repair surface to cause the braze tape to diffusion bond to the repair surface so as to define a built-up surface;

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aging the braze tape at a temperature of about 1090°C to about 1150°C for a duration of about one to about four hours; and then machining the built-up surface to remove a surface portion of the braze tape and define a wear-resistant coating on the component.

Claim 2 (Previously presented): The process according to claim 1, wherein the braze tape when applied to the repair surface consists essentially of the braze material and the wear-resistant alloy.

Claim 3 (Currently amended): The process according to claim 1, wherein the braze tape is formed by a method comprising:

combining the powder ~~a powder~~ of the braze material, the powder ~~a powder~~ of the wear-resistant alloy, and a binder to form the slurry in which the powders are dispersed; and forming and sintering the braze tape to remove the binder.

Claim 4 (Original): The process according to claim 1, wherein the braze material consists of, by weight, about 22.5 to 24.25% chromium, about 9.0 to 11.0% nickel, about 6.5 to 7.5% tungsten, about 3.0 to 4.0% tantalum, about 2.6 to 3.0% boron, with the balance cobalt, minor alloying elements, and

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incidental impurities.

Claim 5 (Canceled)

Claim 6 (Currently amended): The process according to claim 1, ~~wherein claim 5, wherein the braze material consists of, by weight, about 22.5 to 24.25% chromium, about 9.0 to 11.0% nickel, about 6.5 to 7.5% tungsten, about 3.0 to 4.0% tantalum, about 2.6 to 3.0% boron, with the balance cobalt, minor alloying elements, and incidental impurities, and the braze tape contains, by weight, about 10% to about 30% of the braze material and about 70% to about 90% of the wear-resistant alloy.~~

Claim 7 (Original): The process according to claim 1, wherein the component is a shroud support component of a turbomachine and the worn surface is on a support flange of the shroud support component, the support flange being adapted for supporting a shroud component of the turbomachine.

Claim 8 (Currently amended): A process for refurbishing a shroud support component of a gas turbine engine, the shroud support component having a forward flange having a forward lip and a forward face that have worn

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surfaces as a result of being in high compression contact with an outer band of a nozzle of the gas turbine engine, the process comprising the steps of:

disassembling the nozzle from the shroud support component;

removing a surface region from each of the worn surfaces so as to define repair surfaces on the shroud support component;

forming braze tapes by combining a powder of a braze material, a powder of a metallic wear-resistant cobalt alloy, and a binder to form a slurry in which the powders are dispersed, wherein the wear-resistant cobalt alloy consists of, by weight, about 27 to about 29% molybdenum, about 16.5 to about 17.5% chromium, about 3.0 to about 3.5% silicon, up to about 3% iron, up to about 3% nickel, with the balance cobalt, minor alloying elements, and incidental impurities, and then forming and sintering to remove the binder, each of the braze tapes consisting of the braze material dispersed in a matrix material of the wear-resistant cobalt alloy;

attaching the braze tapes to the repair surfaces;

heat treating the braze tapes and the repair surfaces to cause the braze tapes to diffusion bond to the repair surfaces so as to define built-up surfaces;

aging the braze tapes at a first temperature of about 1090°C to about 1150°C for a duration of about one to about four hours; and then

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machining the built-up surfaces to remove a surface portion of each of the braze tapes and define wear-resistant coatings on the shroud support component.

Claim 9 (Original): The process according to claim 8, wherein the braze material consists of, by weight, about 22.5 to 24.25% chromium, about 9.0 to 11.0% nickel, about 6.5 to 7.5% tungsten, about 3.0 to 4.0% tantalum, about 2.6 to 3.0% boron, with the balance cobalt, minor alloying elements, and incidental impurities.

Claim 10 (Canceled)

Claim 11 (Currently amended): The process according to claim 8, ~~wherein claim 10, wherein the braze material consists of, by weight, about 22.5 to 24.25% chromium, about 9.0 to 11.0% nickel, about 6.5 to 7.5% tungsten, about 3.0 to 4.0% tantalum, about 2.6 to 3.0% boron, with the balance cobalt, minor alloying elements, and incidental impurities, and the braze tape contains, by weight, about 19% to about 21% of the braze material and the balance essentially the wear-resistant cobalt alloy.~~

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Claim 12 (Previously presented): The process according to claim 1, wherein after the aging step the braze tape undergoes a second aging step at a temperature of about 760°C for about four hours.

Claim 13 (Previously presented): The process according to claim 1, wherein as a result of the machining step the surface of the wear-resistant coating has a surface finish of about 1 to about 3 micrometers Ra.

Claim 14 (Previously presented): The process according to claim 8, wherein after the aging step the braze tapes undergo a second aging step at a temperature of about 760°C for about four hours.

Claim 15 (Previously presented): The process according to claim 8, wherein as a result of the machining step the surfaces of the wear-resistant coatings have surface finishes of about 1 to about 3 micrometers Ra.

Claims 16-20 (Canceled)